AFRL Fire Research

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AFRL Fire Research

- MISSION:
  - Conduct exploratory and advanced research in fire fighting and rescue technologies and develop improved suppression/mitigation agents, specialized equipment, and techniques to counter new and evolving fire threats to DoD assets.

Areas of Interest

- Materials Fire Hazard Research
  - Alternative to Halon suppression system that will extend range of safe operations aircraft equipped with airborne laser.
- Characterization of Fire Properties of Composite Materials
  - Burn through testing.
  - Cone calorimetry.
  - Determining off-gassing products and mechanism of ignition for aircraft composites.

Areas of Interest

- Advanced Fire Fighting Agent Research
  - Combination of computer modeling/simulation and laboratory tests to invent/discover fire fighting agents that are more effective and less damaging to the environment.

Areas of Interest

- Ultra High Pressure
  - Water or Foam Spray at ≥ 1200 psi.
    - Current emphasis on increasing throw distance.
  - Retrofit P-19 trucks with UHP system.
    - USAF set to modify five P-19s.

Areas of Interest

- Advanced Deployable Fire Fighting System
  - Working with commercial truck manufacturers to develop an Aircraft Rescue and Fire Fighting (ARFF) Vehicle capable of suppressing large scale liquid hydrocarbon fuel fires.
    - UHP water and AFFF, compressed air foam, and combined agent AFFF-dry chemical systems.
    - Next generation USAF deployable fire truck.
    - Ability to airlift two on C130 (v.s. a single P-19).

Areas of Interest

- Advanced Deployable Fire Fighting System (continued)
  - Also working with commercial manufacturers to build a skid steered, all-terrain vehicle equipped with UHP and other advanced fire and rescue systems.
- Closed Cell Foam Fire Protection
  - Develop fire-retardant closed cell foam of lightweight, low-volume materials for protecting aircraft shelters, tents, and other expedient shelters in remote expeditionary locations.

Areas of Interest

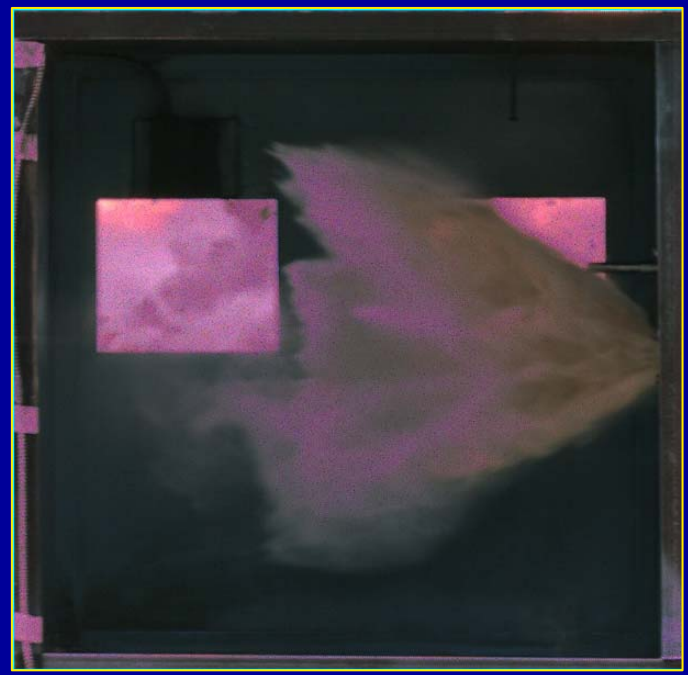
- Support to FAA
  - Full size instrumented mock-up of a section of the new large aircraft for evaluation of agents, systems, equipment, and vehicles.
  - Evaluation of FAA Striker truck.

Areas of Interest

- Halon 1211 Replacement
  - Provide technical advice and fire fighting effectiveness evaluations of candidate replacement agents for USN/USAF flight line fire extinguishers.

Areas of Interest

- Tactical Vehicle Fire Suppression
  - Burn protection from fuel enhanced improvised explosive devices (IEDs) for personnel in tactical vehicles.



Areas of Interest

- Ultra-High-Speed Fire Suppression
  - Suppression of the the fastest burning materials, like MJU 32/38 magnesium-Teflon pyrotechnic flare material.
    - Advanced Fire Protection Deluge System (AFPDS)
    - Blast Initiated Deluge System (BIDS)

Areas of Interest

- SBIR: Lightweight Durable Intumescent Paint
  - Develop a lightweight, durable intumescent paint for composite aircraft parts that delays ignition and reduces flame spread. *(Texas Research Institute Austin, Inc.)*
- SBIR: Pilot Extraction Tool
  - Design and build a lightweight, portable pilot extraction system for use on the F-22 and other fighter aircraft. *(Quoin International, Inc)*

Areas of Interest

- SBIR: Graphical User Interface (GUI) for Fire Simulation Models
  - Develop a graphical user interface for a range of simulation tools that reduces the expertise and level of effort required to configure and run fire scenarios. *(Reaction Engineering International)*

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- Questions?